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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,740	06/18/2001	John G. McDonough	TI-31695	1761

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TEXAS INSTRUMENTS INCORPORATED  
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EXAMINER
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DSOUZA, JOSEPH FRANCIS A

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	Application No. 09/883,740	Applicant(s) MCDONOUGH ET AL.	
	Examiner Adolf DSouza	Art Unit 2611	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2, 4 - 15, 17 - 49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 - 15, 17 - 44, 49 is/are allowed.
- 6) ☒ Claim(s) 2, 4, 5, 45 and 47 is/are rejected.
- 7) ☒ Claim(s) 46, 48 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Arguments***

1. Applicant's arguments, see Remarks (page 14 – 15) filed 1/29/2007 with respect to the rejection(s) of claim(s) 2 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Storm et al. (US 6,016,312) and Yu et al. (US 6,735,454).
2. In Office Action dated 3/27/2006, Examiner had used Storm et al. (US 6,016,312) and Yu et al. (US 6,735,454) to reject claims 1,2,4,5 and 16. Applicant had responded to this Office Action in Remarks dated 9/30/2006, stating that there was no motivation to combine Storm and Yu. On closer examination of the above two references, Examiner believes that there was sufficient motivation to combine the two references and is therefore using those again. Applicant had stated that in Storm's system that there is "substantial synchronization with system timing and that because of this there is no reason to add further steps (Remarks 9/20/2006; page 13, 2<sup>nd</sup> paragraph). Examiner respectfully disagrees with the above. Storm discloses several times that after coming out of sleep mode, the timing isn't accurate enough and it needs to be reacquired (Fig. 3B, element 344; column 1, lines 39 – 41, 54 – 59).
3. The Finality of the previous rejection is being withdrawn and Examiner is generating a new Non-Final rejection, as described below.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storm et al. (US 6,016,312) in view of Yu et al. (US 6,735,454).

Regarding claim 2, Storm et al. discloses in direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising (col. 1, lines 39-41, col. 3, lines 13-14, 25-26):

disabling a reference clock during a sleep interval (col. 5, lines 50-53, col. 7, lines 63-67, col. 8, lines 56-61) ;

following the sleep interval, enabling the reference clock (col. 5, lines 11-25, col. 6, lines 42-47, col. 7, lines 11-13, col. 9, lines 27-33);

modifying the system timing by a ratio, where the ratio is the reference clock frequency divided by the sleep clock frequency (col. 6, lines 1-6);

measuring a reacquisition error and wherein calculating the ratio includes calculating the ratio in response to the reacquisition error (col. 1, lines 51-59, col. 8, lines 33-35, col. 9, lines 52-58).

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Storm does not disclose wherein the sleep clock frequency is adjusted for frequency drift.

In the same field of endeavor, however, Yu discloses wherein the sleep clock frequency is adjusted for frequency drift (abstract, col. 6, lines 22-26).

Therefore it would have been obvious to one of ordinary skill in the art to modify Storm et al. to incorporate wherein the sleep clock frequency is adjusted for frequency drift in order to compensate for the initial and final offsets to re-activate the high frequency clock to be re-activated based upon fractional portions of the low frequency clock (Yu et al., col. 4, lines 16-21).

Regarding claim 4, Storm discloses prior to disabling the reference clock, determining the number of sleep clock periods in the sleep interval; and wherein disabling reference clock during the sleep interval includes disabling the reference clock for the determined number of sleep clock periods (col. 7, lines 11-13, 40-45, 63-67, col. 8, line 1).

All other limitations of claim 4 are as analyzed in claim 2 above.

Regarding claim 5, Storm discloses determining the number of sleep clock periods in the sleep interval includes determining the number of sleep clock periods using the ratio (col. 6, lines 30-52, col. 8, lines 32-35).

6. Claims 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Storm et al. (US 6,016,312) in view of Nogawa (US 6,147,530).

Regarding claim 45, Storm in direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising (col. 1, lines 39-41, col. 3, lines 13-14, 25-26):

disabling a reference clock during a sleep interval (col. 5, lines 50-53, col. 7, lines 63-67, col. 8, lines 56-61) ;

following the sleep interval, enabling the reference clock (col. 5, lines 11-25, col. 6, lines 42-47, col. 7, lines 11-13, col. 9, lines 27-33);

modifying the system timing by a ratio, where the ratio is a frequency of the reference clock divided by the frequency of a sleep clock (col. 6, lines 1-6).

Storm does not disclose that the frequency of the reference clock is obtained from the rising and falling edges of the reference clock.

In the same field of endeavor, however, Nogawa discloses the frequency of the clock is based upon an average of the number of rising and falling edges of the reference clock (column 13, lines 34 – 38; wherein the period of the clock of obtained from the rising and falling edges and the frequency can be calculated from the period).

Therefore it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to use the method, as taught by Nogawa, in the system of Storm because this would allow the frequency of the clock signal to be determined.

7. Claims 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Storm et al. (US 6,016,312) in view of Yu et al. (US 6,735,454) and further in view of Chung et al. (US 5,642,377).

Regarding claim 47, Storm discloses in a direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising (col. 1, lines 39-41, col. 3, lines 13-14, 25-26):

disabling a reference clock during a sleep interval (col. 5, lines 50-53, col. 7, lines 63-67, col. 8, lines 56-61);

following the sleep interval, enabling the reference clock (col. 5, lines 11-25, col. 6, lines 42-47, col. 7, lines 11-13, col. 9, lines 27-33);

and modifying the system timing by a ratio, where the ratio is the reference clock frequency divided by a sleep clock frequency (col. 6, lines 1-6).

Storm does not disclose the ratio is adjusted for frequency drift and that the ratio is smoothened out using an IIR filter.

In the same field of endeavor, however, Yu discloses wherein the sleep clock frequency is adjusted for frequency drift (abstract, col. 6, lines 22-26).

Therefore it would have been obvious to one of ordinary skill in the art to modify Storm et al. to incorporate wherein the sleep clock frequency is adjusted for frequency drift in order to compensate for the initial and final offsets to re-activate the high frequency clock to be re-activated based upon fractional portions of the low frequency clock (Yu et al., col. 4, lines 16-21).

In the same field of endeavor, however, Chung discloses applying an IIR filter to a current and a previous value of the ratio, whereby an error in the ratio is smoothed out (Fig. 6, element 22; column 8, lines 28 – 30. Chung discloses noise is smoothened out but of ordinary skill in the art knows that an IIR lowpass filter can be used to smoothen out any signal, including the ratio values).

Therefore it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to use the method, as taught by Chung, in the system of Storm because this would allow the ratio to be averaged out, thereby reducing high frequency fluctuations in the ratio.

***Allowable Subject Matter***

8. Claims 6 – 15, 17 – 44, 49 are allowed.



9. Claims 46 and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Other Prior Art Cited***

The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

The following patents are cited to further show the state of the art with respect to sleep mode in mobile receivers:

Roberts et al. (US 6,212,398) discloses a Wireless telephone that rapidly reacquires a timing reference from a wireless network after a sleep mode.

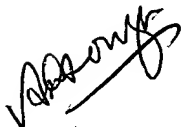
Koenck et al. (US 6,014,705) discloses a modular portable data processing terminal having a higher layer and lower layer partitioned communication protocol stack for use in a radio frequency communications network.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adolf DSouza whose telephone number is 571-272-1043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



AD

Adolf D'Souza  
Examiner  
Art Unit 2611



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